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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/423,948	04/14/2000	LEONID BERESNEV	2345/103	7349
26646	7590	01/04/2008	EXAMINER	
KENYON & KENYON LLP			NGUYEN, HOAN C	
ONE BROADWAY			ART UNIT	
NEW YORK, NY 10004			PAPER NUMBER	
			2871	
			MAIL DATE	
			DELIVERY MODE	
			01/04/2008	
			PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/423,948

Applicant(s)

BERESNEV ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/2007 has been entered.

Claims 1-5 are cancelled. Claims 17-27 newly added.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 6-8, 10-14, 16-19, 21-25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by De Lang (US3635552) provided in IDS.

In regard to claims 6, 12, 17 and 23, De Lang teaches (Fig. 1) a tunable interferometer for measuring an optical surface comprising:

- at least one light source 1;

- a reference surface 5, light from the at least one light source impinging the reference surface, the reference surface reflecting a first interference beams wherein the reference surface is stationary when at least one light source impinges the reference surface 5 (see attachment);
- a test object 12, light from the at least one light source impinging the test object, the test object reflecting a second interference beam (see attachment);
- at least one beam splitter 3, the first interference beam and the second interference beam striking the at least one beam splitter; and
- a polarizer 6 & 7 polarizing the first interference beam and the second interference beam so that the first interference beam and the second interference beam each have a different polarization state relative to one another; and
- an analyzer, **including rotated analyzer 10, image field 11 and detectors 32-33**, positioned at an output of the interferometer, the analyzer having a variable polarization state (rotating), the analyzer tuning the interferometer as a function of the polarized first interference beam and the second interference beam, wherein depending on the polarization state of the analyzer, an additional phase inherently is introduced into at least one of the first and second interference beams of different polarizations so that an interference fringe pattern is displaced by a distance **from height of the object** (with electrical signals produced in detectors 32-33 having a phase difference equal the optical phase difference between beams 15 and 16; the col. 3 lines 19-27). **Height of the object is**

**measured or detected by distance of a shift in the interference fringe
pattern since different height cause the interference fringe pattern shift.**

wherein

Claims 7, 13, 18 and 24:

- the interferometer is a two-beam interferometer, wherein the light is a linearly polarized light and wherein the polarizer includes a first $\lambda/4$ retardation plate 7 allocated to the reference surface, and a second $\lambda/4$ retardation plate 6 positioned before the analyzer.

Claims 8, 14, 19 and 25:

- the analyzer includes a rotatable linear analyzer (abstract and col. 3 lines 28-29).

Claims 10, 16, 21 and 27:

- the analyzer is arranged physically separate from the interferometer.

Claims 11 and 22:

- the test object 12 is stationary when the at least one light source impinges the test object.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9, 15, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Lang (US3635552) as applied to claims 6-8, 10-14 and 16, and in further view of Sharp et al. (US5627666).

De Lang fails to disclose the interferometer having the analyzer including an electrically tunable liquid-crystal element with a linear polarizer.

Sharp et al. teach (Fig. 3) the interferometer (col. 2 lines 20-21) having the analyzer including an electrically tunable liquid-crystal element 10/20 with a linear polarizer 40.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a tunable interferometer as De Lang disclosed with the analyzer including an electrically tunable liquid-crystal element with a linear polarizer for increasing tuning range (col. 2 lines 35-46).

Response to Arguments

Applicant's arguments filed on 10/31/2007 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

The De Lang reference does not teach the entire structure of the present invention - and does not suggest in a manner to one skilled in the art to take its analyzer, use it in a specified way (and placement in the setup) with the other elements used in the claims.

The De Lang reference does not identically describe - as it must for anticipation - each and every element of claim 6, including the analyzer positioned at the output of the interferometer, the analyzer having a variable polarization state and tuning the interferometer as a function of the polarized first interference beam and the second interference beam, wherein an additional phase is introduced into at least one of the interference beams so that the interference fringe pattern is displaced by a distance.

Examiner's responses to Applicants' ONLY arguments are follows:

Claim 6 also does not illustrate the exact structure in Fig. 1 of the instant application. In order to illustrate Fig. 1 of the instant application, applicants must claim the locations of each elements of the inventive tunable interferometer. For example,

- the linear polarizer disposed between the light source and a beam splitter 30 to form the polarized light beam
- the quarter wave plate 60 placing between test object 50 and reference surface 40 forms the circular polarized light beam impinging the test object.
- the retardation (second quarter wave plate 70) between 30 and analyzer 80 forms the circular polarized light of the first and second interference beams, which form the interference fringe pattern on the analyzer 80.

The inventive-invention used the interference fringe pattern of two the circular polarized light beams striking on the analyzer (page 5 lines 3-15). However, the

inventive invention does not disclose any structure of analyzer, which measures a predetermined distance in the interference fringe pattern.

The De Lang reference also used the interference fringe pattern of two the circular polarized light beams striking on the analyzer (col. 3 lines 1-5). Further, the De Lang reference disclosed the detail the structure of analyzer, which including the rotated analyzer 10, the image field 11 and the detectors 32-33. This structure of analyzer measured the stripe pattern shift (col. 3, lines 13-14), which is inherently determined by a predetermined distance in the interference fringe pattern.

The analyzer of the De Lang reference has inherently positioned at the output of the interferometer.

The analyzer of the De Lang reference includes the rotated analyzer 10 having a variable polarization state.

The analyzer of the De Lang reference tunes the interferometer as a function of the polarized first interference beam and the second interference beam.

An additional phase due to height difference of the object is introduced into at least one of the interference beams so that the interference fringe pattern shift is inherently displaced by a distance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571)

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272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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SENIOR
EXAMINER

Attachment

PATENTED JAN 18 1972

3,635,552

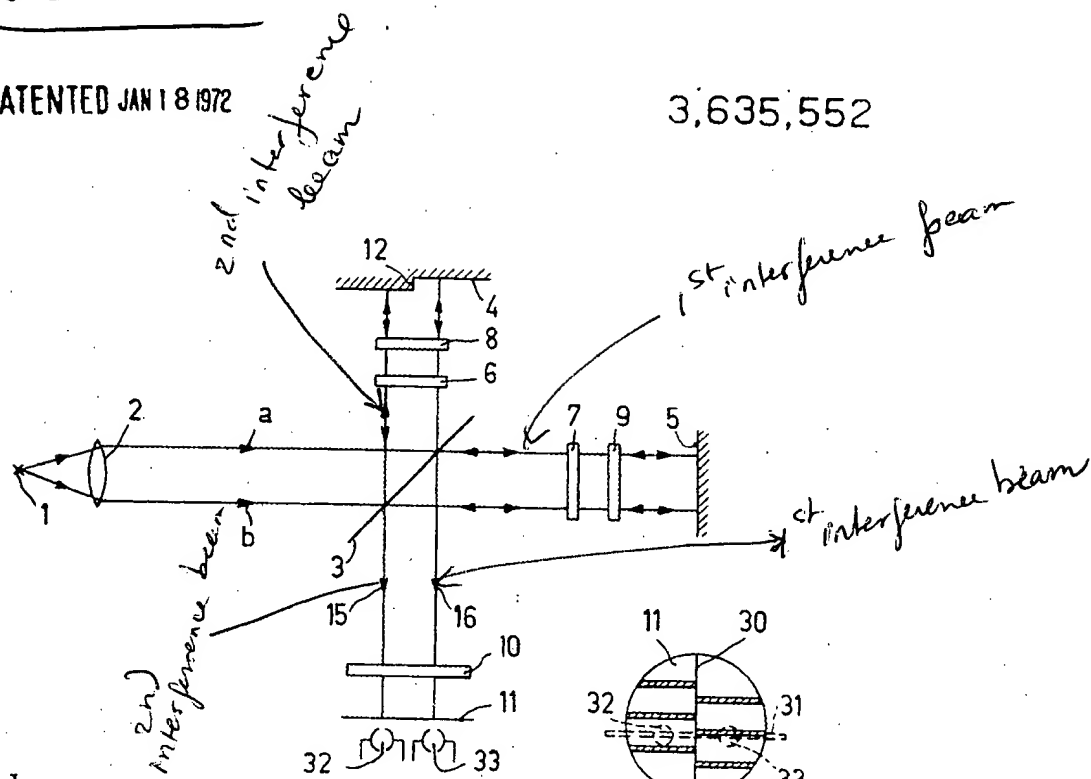


FIG. 1

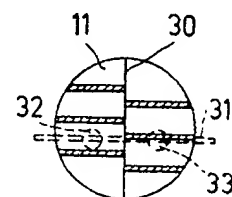


FIG. 3

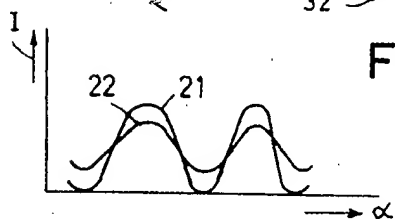


FIG. 2

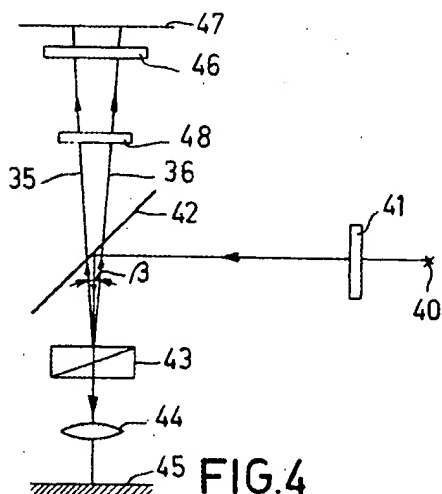


FIG. 4

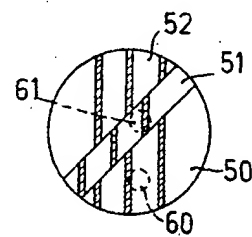


FIG. 5

INVENTOR.

HENDRIK DE LANG

BY

Frank R. Lang
AGENT